

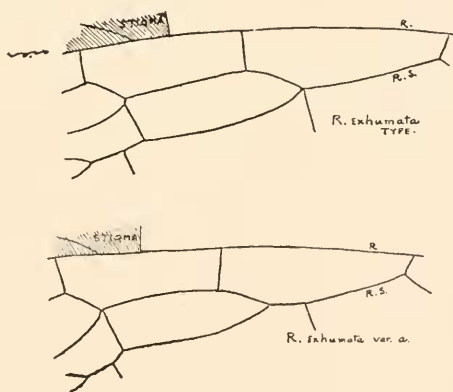
A Fossil *Raphidia* (Neur., Planip.).

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A well-preserved anterior wing of *Raphidia* was found by my wife in the Miocene shales of Florissant, Colorado, at Station 23. It is about 12.75 mm. long and 3.75 broad. On comparing it with the type of *R. exhumata* Ckll., I find that it corresponds very closely in appearance and structure, but in Rohwer's table (*Amer. Journ. Science*, xxviii, 534) it runs to *R. mortua* Roh., from which it differs by the larger size, darker venation, the greater number (nine) of cross-veins in the costal area, subcosta joining costa much less than length of stigma from stigma, and some other details. It differs from *R. exhumata* principally as follows:

(a.) Only two cells on costa beyond stigma (three in *exhumata*.)

(b.) Second cross-vein connecting radial sector with media a considerable distance basad of forking of sector, as in *R. mortua* (jointing base of fork in *exhumata*).



(c.) Fifth branch of radius forked at end, though fourth is simple (both simple in *exhumata*).

Thus the new fossil seems intermediate between *R. exhumata* and *R. mortua*; it may be known as *R. exhumata* var. *a.*

and it now seems probable that *R. mortua* is another variety of the same species.

The species problem among fossil insects is a difficult one. Handlirsch attempts to solve it by treating each distinguishable form as a distinct species; thus in *Contributions to Canadian Palaeontology*, Vol. II, part III (1910) he describes twenty species of the Bibionid genus *Penthetria* from the Tertiary rocks of British Columbia, although it is surely improbable that they are all specifically distinct. Such a plan has the advantage of separating and defining all the available structural types, but it must result in misleading statistics if carried far. It seems better to give specific names only to forms which are probably distinct, using the same criteria as are considered valid in the case of their nearest living allies, and to distinguish others as varieties, with either varietal names or letters of the alphabet.

Handlirsch, in the work just cited, has an interesting discussion of the fossil Raphidiidae, in which he proposes new generic names for two of the Florissant species. *Megaraphidia elegans*, *Raphidia exhumata* and *R. mortua* all agree in having the upper branch of the radial sector simple until it reaches the end, or nearly the end, of the cell in the fork of the sector; a condition very different from that found in the living *R. oblita* and *R. notata*. In the living *R. rhodopica*, however, the condition in this respect is as in the fossils. *R. rhodopica* differs conspicuously from the fossils in the much shorter lower side of the pterostigma. In the basal stalk of M-Cu *R. rhodopica* differs from the fossils, which herein agree with *R. oblita* and *R. notata*. The cross-vein descending from the lower side of the pterostigma is a character which separates the fossils from the recent species; in the latter the cross-vein is beyond the stigma, or in *R. rhodopica* descending from its end. All things considered, it seems impracticable to separate *R. exhumata* and *mortua* from *Raphidia*, and I am now doubtful whether *Megaraphidia* is more than a subgenus, although Handlirsch says it is "undoubtedly a well-founded genus."